

WHAT IS CLAIMED IS:

1 1. A multi-chip module (MCM) comprising:
2 a first integrated circuit (IC) chip on a substrate;
3 a first ground plane coupled to the first IC chip;
4 a second IC chip on the substrate; and
5 a second ground plane coupled to the second IC chip.

1 2. The MCM of Claim 1, wherein each of the first and second ground
2 planes is coupled to at least one external lead of the MCM.

1 3. The MCM of Claim 1, wherein each of the first and second ground
2 planes is formed as a respective trace on the substrate.

1 4. The MCM of Claim 1, wherein each of the first and second ground
2 planes is substantially rigid.

1 5. The MCM of Claim 1, wherein each of the first and second ground
2 planes is substantially flexible.

1 6. The MCM of Claim 1, wherein each of the first and second ground
2 planes comprises a strip of conductive material.

1 7. The MCM of Claim 1, wherein each of the first and second ground
2 planes comprises a layer of conductive material.

1 8. The MCM of Claim 1, wherein each of the first and second ground
2 planes comprises a substantially solid layer of conductive material.

1 9. The MCM of Claim 1, wherein each of the first and second ground
2 planes comprises a grid of conductive material.

1 10. The MCM of Claim 1, wherein the first chip is bonded to the first ground
2 plane, and the second chip is bonded to the second ground plane.

1 11. The MCM of Claim 1, wherein the first chip is attached to the first
2 ground plane, and the second chip is attached to the second ground plane.

1 12. The MCM of Claim 1, wherein at least one of the first and second chip
2 comprises a dynamic random access memory (DRAM) chip.

1 13. The MCM of Claim 12, wherein the first and second chips are attached
2 to the first and second ground planes via a flip-chip technique.

1 14. The MCM of Claim 1, wherein at least one of the first and second chips
2 comprises a memory chip.

1 15. The MCM of Claim 1, wherein at least one of the first and second chip
2 comprises an application specific integrated circuit (ASIC).

1 16. The MCM of Claim 1, wherein one of the first and second chips is
2 coupled to a plurality of input/output connectors of the MCM and the other of the first
3 and second chips is not coupled to any input/output connectors of the MCM.

1 17. The MCM of Claim 1, wherein the first chip is coupled to the second
2 chip via at least one trace.

1 18. The MCM of Claim 1, wherein at least one of the first and second chips
2 may be tested without affecting operation of the other of the first and second chips in
3 the MCM.

1 19. The MCM of Claim 1, wherein at least one of the first and second chips
2 may be tested without being affected by an operation of one or more other chips in the
3 MCM.

1 20. The MCM of Claim 1, further comprising:
2 a first power plane coupled to the first IC chip; and
3 a second power plane couple to the second IC chip.

1 21. A method of testing first and second integrated circuit (IC) chips on a
2 substrate in a multi-chip module, the first IC chip provided with a first ground
3 plane and the second IC chip provided with a second ground plane, the method
4 comprising:
5 testing the first IC chip without affecting an operation of the second IC chip; and
6 testing the second IC chip without affecting an operation of the first IC chip.

1 22. A method of testing first and second integrated circuit (IC) chips on a
2 substrate in a multi-chip module, the first IC chip provided with a first ground plane and
3 the second IC chip provided with a second ground plane, the method comprising:
4 testing the first IC chip without being affected by an operation of the second IC
5 chip; and
6 testing the second IC chip without being affected by an operation of the first IC
7 chip.

1 23. A method of testing at least one interconnect between two integrated
2 circuit (IC) chips on a substrate in a multi-chip module, the first IC chip provided with a
3 first ground plane and the second IC chip provided with a second ground plane, the
4 method comprising:

1 applying a signal to the first IC chip; and
2 determining a current change on the interconnect in response to the signal
3 applied to the first IC chip.

1 24. A method of making a multi-chip module (MCM) comprising:
2 providing a substrate;
3 providing a first ground plane and a second ground plane on the substrate; and
4 providing a first integrated circuit (IC) chip for the first ground plane and a
5 second IC chip for the second ground plane.

1 25. The method of Claim 24 comprising providing a first power plane for the
2 first chip and a second power plane for the second chip.

1 26. The method of Claim 24 comprising attaching the first and second
2 ground planes to the substrate.

1 27. The method of Claim 26, wherein testing the first IC chip comprises
2 supplying power to the first IC chip without supplying power to the second IC chip.

1 28. The method of Claim 26 comprising attaching the first and second chips
2 to the substrate.

1 29. The method of Claim 24, wherein testing the first IC chip comprises
2 supplying power to the first IC chip without supplying power to the second IC chip.

1 30. The MCM of Claim 29, wherein the first power plane supports a first
2 voltage level and the second power plane supports a second power level.

1 31. The MCM of Claim 29, further comprising a third power plane coupled
2 to both first and second IC chips.